

**Amendment to the Claims:**

This listing of claims will replace all prior versions and listings of claims in this application:

**Listing of Claims:**

Claim 1 (currently amended): A process for decontaminating water, decontamination  
process comprising: the step of  
selecting as water decontaminant a sorbent material that binds anionic species  
predominantly through the formation of surface complexes, said sorbent material having a  
composition including divalent metals, trivalent metals, and species selected from the group  
consisting of oxygen and sulfur,  
decontaminating water by contacting said selected sorbent material with water  
containing anionic contaminants, the anionic contaminants being selected from the group  
consisting of species including chromium and species including arsenic, said  
decontaminating substantially removing the anionic contaminants with sorbent material that  
binds anionic species predominantly through the formation of surface complexes, wherein  
said sorbent material comprises divalent metals, trivalent metals and species selected from the  
group consisting of oxygen and sulfur.

Claim 2 (currently amended): The process of claim 1-9 wherein the said sorbent  
material comprises a chemical substance selected from the group consisting of a first  
composition in which a species A has a prevalence of about half that of a species B, and a  
species X has a prevalence of about four times that of the species A,

wherein ~~for either~~ compositions A and B are metal species and X is selected from the group consisting of oxygen and sulfur.

Claim 3 (currently amended): The process of claim 1-9 wherein ~~the said~~ sorbent material comprises a chemical substance selected from the group consisting of  $\text{MgAl}_2\text{O}_4$ ,  $\text{MnAl}_2\text{O}_4$ ,  $\text{FeAl}_2\text{O}_4$ ,  $\text{ZnAl}_2\text{O}_4$ ,  $\text{MgFe}_2\text{O}_4$ ,  $\text{MnFe}_2\text{O}_4$ ,  $\text{Fe}_3\text{O}_4$ ,  $\text{ZnFe}_2\text{O}_4$ ,  $\text{NiFe}_2\text{O}_4$ ,  $\text{CuFe}_2\text{O}_4$ ,  $\text{Fe}_3\text{S}_4$ ,  $\text{MgCr}_2\text{O}_4$ ,  $(\text{Mn,Fe})(\text{Cr,V})_2\text{O}_4$ ,  $\text{FeCr}_2\text{O}_4$ ,  $(\text{Ni,Fe})(\text{Cr,V})_2\text{O}_4$ ,  $(\text{Co,Ni})(\text{Cr,Al})_2\text{O}_4$ ,  $\text{MgV}_2\text{O}_4$ ,  $\text{FeV}_2\text{O}_4$ ,  $(\text{Mn,Fe})(\text{V,Cr})_2\text{O}_4$ ,  $\text{Mg}_2\text{TiO}_4$ ,  $\text{Fe}_2\text{TiO}_4$ ,  $\text{Mn}_3\text{O}_4$ ,  $\text{CuCo}_2\text{S}_4$ ,  $\text{CuBi}_2\text{O}_4$ ,  $\text{Mn}(\text{Mn,Fe})_2\text{O}_4$  and  $\text{ZnMn}_2\text{O}_4$ .

Claim 4 (currently amended): The process of claim 2 wherein ~~the said~~ sorbent material comprises a chemical substance having the first composition, and A is selected from the group consisting of  $\text{Co}^{2+}$ ,  $\text{Cu}^{2+}$ ,  $\text{Fe}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{Mn}^{2+}$ ,  $\text{Ni}^{2+}$ ,  $\text{Zn}^{2+}$ , and combinations thereof, and B is selected from the group consisting of  $\text{Al}^{3+}$ ,  $\text{Bi}^{3+}$ ,  $\text{Co}^{3+}$ ,  $\text{Cr}^{3+}$ ,  $\text{Fe}^{3+}$ ,  $\text{Mn}^{3+}$ ,  $\text{Ni}^{3+}$ ,  $\text{V}^{3+}$  and combinations thereof.

Claim 5 (withdrawn): A water decontamination medium comprising:  
sorbent material that binds anionic species, selected from the group consisting of species including chromium and species including arsenic, predominantly through the formation of surface complexes, wherein said sorbent material comprises divalent metals, trivalent metals and a species selected from the group consisting of oxygen and sulfur.

Claim 6 (withdrawn): The decontamination medium of claim 6 wherein the sorbent material comprises a chemical substance selected from the group consisting of a first

composition in which a species B has a prevalence of about twice that of a species A, and a species X has a prevalence of about four times that of the species A,

wherein for either composition A and B are metal species and X is selected from the group consisting of oxygen and sulfur.

Claim 7 (withdrawn): The decontamination medium of claim 6 wherein the sorbent material comprises a chemical substance selected from the group consisting of  $\text{MgAl}_2\text{O}_4$ ,  $\text{MnAl}_2\text{O}_4$ ,  $\text{FeAl}_2\text{O}_4$ ,  $\text{ZnAl}_2\text{O}_4$ ,  $\text{MgFe}_2\text{O}_4$ ,  $\text{MnFe}_2\text{O}_4$ ,  $\text{Fe}_3\text{O}_4$ ,  $\text{ZnFe}_2\text{O}_4$ ,  $\text{NiFe}_2\text{O}_4$ ,  $\text{CuFe}_2\text{O}_4$ ,  $\text{Fe}_3\text{S}_4$ ,  $\text{MgCr}_2\text{O}_4$ ,  $(\text{Mn,Fe})(\text{Cr,V})_2\text{O}_4$ ,  $\text{FeCr}_2\text{O}_4$ ,  $(\text{Ni,Fe})(\text{Cr,V})_2\text{O}_4$ ,  $(\text{Co,Ni})(\text{Cr,Al})_2\text{O}_4$ ,  $\text{MgV}_2\text{O}_4$ ,  $\text{FeV}_2\text{O}_4$ ,  $(\text{Mn,Fe})(\text{V,Cr})_2\text{O}_4$ ,  $\text{Mg}_2\text{TiO}_4$ ,  $\text{Fe}_2\text{TiO}_4$ ,  $\text{Mn}_3\text{O}_4$ ,  $\text{CuCo}_2\text{S}_4$ ,  $\text{CuBi}_2\text{O}_4$ ,  $\text{Mn}(\text{Mn,Fe})_2\text{O}_4$  and  $\text{ZnMn}_2\text{O}_4$ .

Claim 8 (withdrawn): The decontamination of claim 7 wherein the sorbent material comprises a chemical substance having the first composition, and A is selected from the group consisting of  $\text{Co}^{2+}$ ,  $\text{Cu}^{2+}$ ,  $\text{Fe}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{Mn}^{2+}$ ,  $\text{Ni}^{2+}$ ,  $\text{Zn}^{2+}$ , and combinations thereof, and B is selected from the group consisting of  $\text{Al}^{3+}$ ,  $\text{Bi}^{3+}$ ,  $\text{Co}^{3+}$ ,  $\text{Cr}^{3+}$ ,  $\text{Fe}^{3+}$ ,  $\text{Mn}^{3+}$ ,  $\text{Ni}^{3+}$ ,  $\text{V}^{3+}$  and combinations thereof.

Claim 9 (new): The process of claim 1, wherein said selected sorbent material is the only selected water decontaminant.

Claim 10 (new): The process of claim 9, wherein said selected sorbent material is  $\text{CuFe}_2\text{O}_4$ .

Claim 11 (new): The process of claim 10, wherein the anionic contaminants consist of species including arsenic.

Claim 12 (new): The process of claim 9, wherein the anionic contaminants consist of species including arsenic.

Claim 13(new): The process of claim 9, wherein said selected sorbent material substantially removing the anionic contaminants.